

September 30, 2008

VIA CERTIFIED MAIL

Mr. Jay Chen
South Coast Air Quality Management District (SCAQMD)
Engineering and Compliance
21865 Copley Dr.
Diamond Bar, CA 91765-4182

***RE: Comments on the draft operating permit for the ConocoPhillips Wilmington Refinery,
Facility ID: 800363, 1660 W Anaheim St., Wilmington, CA 90744***

Dear Mr. Chen,

Environmental Integrity Project (EIP), Communities for a Better Environment (CBE), People's Community Organization for Reform and Empowerment (PeoplesCORE), and Coalition for a Safe Environment (CFASE) (collectively, Commenters) appreciate the opportunity to comment on the draft operating permit for the ConocoPhillips Wilmington Refinery. EIP is a national non-profit organization that advocates for more effective enforcement of environmental law. CBE, PeoplesCORE and Coalition for a Safe Environment are non-profit membership environmental research and advocacy organizations with members in the immediate vicinity of, and directly affected by, the ConocoPhillips Wilmington Refinery.

Communities in Wilmington are particularly vulnerable to air pollution.

The Refinery is located in the community of Wilmington, directly adjacent to residential neighborhoods, a community college, a recreational park, and other sensitive receptors. Hundreds of CBE members live, work, and attend school in Wilmington. Wilmington residents are primarily low-income people of color and many speak little or no English. This community already bears a disproportionate share of environmental hazards. Residents live surrounded by pollution sources such as Conoco's refinery and three other refineries, the Ports of Los Angeles and Long Beach, major freeways, and numerous industrial facilities. Pollution from these sources combines to create cumulative adverse health and environmental impacts. SCAQMD's own air quality study shows that the residents of the San Pedro-Wilmington area suffer from some of the highest cancer risks in the South Coast from breathing polluted air. The unacceptably high cancer risk for Wilmington residents is 1,537 per million.

The D.C. Circuit Court of Appeals recently confirmed that Title V permits must include monitoring sufficient to assure compliance.

As SCAQMD is aware, Title V permits must include monitoring requirements sufficient to assure compliance with applicable emission limits and standards.¹ On August 19, 2008, the D.C. Circuit Court of Appeals struck down a USEPA rule that would have prohibited SCAQMD and other state and local authorities from adding monitoring provisions to Title V permits if needed to “assure compliance.”² The opinion instead emphasized the statutory duty to include adequate monitoring:

“By its terms, this mandate means that a monitoring requirement insufficient ‘to assure compliance’ with emission limits has no place in a permit unless and until it is supplemented by more rigorous standards.”³

The opinion also makes clear that the mere existence of “periodic monitoring” requirements may not be sufficient.⁴ Finally, the court’s decision removed any doubt about SCAQMD’s authority to supplement monitoring in Title V permits when needed to “assure compliance” with emission limits.

SCAQMD should review the Title V monitoring provisions to ensure that each provision is in compliance with the Clean Air Act and the court’s recent opinion. Wherever possible, the permit should require continuous emission monitoring that measures compliance based on the averaging period in the underlying standard. For example, compliance with an emission limit that has to be met on a daily basis should be measured every day, not once a year. Where continuous monitoring is not available, the permit should require alternative methods that more closely match monitoring frequency to the averaging time for compliance.

Attachment A provides examples of monitoring methods that do not appear to meet the Title V standard, because testing is too infrequent to assure compliance with limits that must be met on a short-term basis. Several of these examples are explained further in the discussion below.

SCAQMD must require continuous monitoring of particulate matter (PM) from the ConocoPhilips Wilmington Refinery, particularly from the fluid catalytic cracking units (FCCUs) and Boilers.

Section D of the Title V permit limits PM emissions from the FCCU to 0.5 lbs/1000 lbs of coke burned averaged over 3 hours,⁵ and Section D requires an annual stack test to determine compliance with that limit.⁶ Additionally, Section D of the Title V permit limits PM emissions from Turbine D828 and Boiler D829 to 11 lbs/hr,⁷ and no more than a combined total of 269 lbs from both units in any single day.⁸ To monitor emissions at the Turbine Device and Boiler,

¹ 42 U.S.C.A. §7661c(c).

² *Sierra Club, et al., v. EPA*, No. 04-1243, slip op., (D. C. Cir., August 19, 2008).

³ *Id.* at 9.

⁴ *Id.* at 6.

⁵ Section D at 208.

⁶ *Id.* at 247.

⁷ *Id.* at 208.

⁸ *Id.* at 205.

Section D requires a performance test once every 5 years at the exhaust stack for PM.⁹ Relying on annual stack tests – much less one that occurs only once in five years – is clearly inadequate to assure compliance with emission limits that must be met on an hourly or daily basis.¹⁰ Operating conditions at a refinery are far too variable to rely on such infrequent testing to verify compliance with short term standards. As the DC Circuit’s opinion makes plain, SCAQMD has not only the authority, but the duty to correct this deficiency since, “... a monitoring requirement insufficient ‘to assure compliance’ with emission limits has no place in a permit unless and until it is supplemented by more rigorous standards.”¹¹

While the FCCU is subject to an opacity limit of 30%, the USEPA has determined in its proposed approval of Alabama’s Revisions to the Visible Emissions Rule within the Alabama State Implementation Plan (SIP), that “a reliable and direct correlation between opacity and PM emissions cannot be established without significant site-specific simultaneous testing of both PM emissions and opacity, particularly for short-term periods (e.g., 24 hours or less).”¹²

Thus, the ConocoPhilips Wilmington Refinery’s opacity limit of 30% does not indicate that PM emissions from the refinery are in compliance with the limits reflected in the permit. Nor do stack tests conducted annually or once every five years reliably assure compliance with an emission limit that must be met on an hourly or daily basis. The ConocoPhillips Wilmington Refinery should be required to install a PM CEMS (continuous emissions monitoring systems) to measure compliance with the FCCU PM limit on a continuous basis. In lieu of infrequent stack testing, the permit should require PM CEMS or a more reliable method of measuring PM emissions from large turbines and boilers.

SCAQMD must continually test carbon monoxide (CO) emissions with process analyzers.

Similarly, the permit includes numerous examples of short-term emission limitations that need to be met for CO. For example, Section D of the permit limits CO emissions from the FCCU to 500ppm/hr.¹³ To ensure compliance with this limit, it states that “(t)he operator shall determine compliance with the CO emission limit(s) by either: (a) conducting a source test at least once every five years using SCAQMD Method 100.1 or 10.1; or (b) conducting a test at least annually using a portable analyzer and SCAQMD-approved test method.”¹⁴ For the same reason discussed above, measuring compliance with hourly limits once every five years or annually will not meet the requirement of 40 C.F.R Section 70.6(c)(1) of the Clean Air Act.¹⁵

⁹ South Coast Air Quality Management District, Periodic Monitoring Guidelines for Title V Facilities 30, 1997.

¹⁰ While the permit appears to require annual testing to *measure* PM emissions from the turbine and boiler, Condition D28.8, it also specifies that tests for determining *compliance* need only be conducted once every five years, AQMD Rule 476, 10-8-1976, citing the periodic monitoring rule. As noted above, even annual testing is inadequate.

¹¹ Section D at 9.

¹² 40 CFR Part 52 at 3 available at <http://www.epa.gov/EPA-AIR/2007/April/Day-12/a6948.htm>.

¹³ 40 CFR Part 60 Subpart J, 6-24-2008.

¹⁴ Id.

¹⁵ Slip op. at 5 and 15; 42 U.S.C. §7661c(c). Again, while the permit appears to require annual testing to measure CO emissions, condition D28.8, the permit appears to allow Conoco Phillips to rely on testing only once every five years to determine compliance, D328.1. As noted above, even annual testing is inadequate.

Section D limits emissions for the Turbine D828 and Boiler D829 to less than 2,000 ppmv CO, dry basis, averaged over 15 minutes duration,¹⁶ but compliance is monitored only once every five years.¹⁷ Once again, this frequency of monitoring does not assure compliance and the United States Court of Appeals for the D.C. Circuit has held that agencies like SCAQMD have the authority to require compliance through additional monitoring.¹⁸ We recommend that the SCAQMD deploy analyzers on a continuous (or at least a daily) basis to measure short-term CO emissions, or identify an alternate method that could be used to measure emissions consistent with the averaging time specified in the permit.

Approved alternative monitoring for heaters and boilers should be specified in the permit.

SCAQMD appropriately requires continuous monitoring of nitrogen oxide and sulfur dioxide from the FCCU, heaters, boilers, and other large units, but allows alternative monitoring if approved by SCAQMD. Where such alternative monitoring has been approved, the method should be specified in the permit and be rigorous enough to assure compliance with the applicable emission limit.

SCAQMD must require compliance assurance monitoring (CAM) for the ConocoPhillips Wilmington Refinery.

CAM monitoring requirements are important, because they assure that pollution control equipment is in good working order, which means that emission limits are more likely to be met. CAM monitoring applies to refineries whose applications are submitted after April 20, 1998.¹⁹ The ConocoPhillips Wilmington Refinery's application was originally submitted on February 5, 1998.²⁰ If revisions to the application have been made to the permit in the ten years since AQMD originally received the application, CAM requirements are applicable and should be included in the Title V permit.

SCAQMD must require the ConocoPhillips Wilmington Refinery to submit an application to reduce toxic emissions from its boilers.

Four large boilers are listed in the Steam Generation process of the ConocoPhillips Wilmington Refinery Permit in the following order: Boiler, No.4 (142 MMBU/HR); Boiler, No. 8 (304 MMBtu/HR); Boiler, No.7 (179 MMBTU/HR); and Boiler, No.6 (250 MMBTU/HR).²¹

The draft Title V permit makes no reference to hazardous air pollutants (HAPs) in connection with Boiler Nos. 4, 6, 7 and 8. SCAQMD should determine if the industrial boilers are major sources of HAPs, and if so, whether they are subject to the so-called "MACT" Hammer provisions. The D.C. Circuit Court of Appeals struck down the EPA's attempt to set the required

¹⁶ Section D at 143, 144.

¹⁷ South Coast Air Quality Management District, Periodic Monitoring Guidelines for Title V Facilities 8, 1997.

¹⁸ Slip op. at 15.

¹⁹ EPA, *Frequently Asked Questions (FAQs) Concerning the Compliance Assurance Monitoring (CAM) Rule*, (2004), available at <http://www.epa.gov/ttn/emc/cam.html>; SCAQMD website, <http://www.SCAQMD.gov/titlev/CAM.html>.

²⁰ Statement of Basis of Permit at 1.

²¹ Section D at 145-147.

national emission standard for hazardous air pollutants (“NESHAP”) limits for industrial boilers.²² Because the original deadline for establishing such standards had long since expired, the “MACT Hammer” provisions of Clean Air Act section 112(j) now apply. Thus, if Boiler Nos. 4, 6, 7 and 8 are major sources of HAPs, ConocoPhillips is required to submit an application that proposes HAP limits for the boilers based on maximum achievable control technology (MACT).

Title V permits must include all applicable requirements and, at a minimum, this Title V permit should reflect the obligation of ConocoPhillips to submit applications required under 112(j) and establish a schedule for determining MACT limits for industrial boilers

SCAQMD should deploy remote sensing technology to determine actual emissions of volatile organic compounds (VOCs) emitted from the ConocoPhillips Wilmington Refinery.

Starting on Page 150 of the permit, SCAQMD limits VOC leak rates to 500 ppmv. SCAQMD regulates leaks that emit more than 500 ppmv but less than/equal to 1,000 ppmv by setting a timeline for repairing the leak. Best Available Control Technology (BACT) requirements apply to VOC service fugitive components to control leaks of VOCs into the atmosphere. However, the infrequent measurement of VOC leaks may not be adequate to assure compliance with the emission standard. For large units, e.g. tanks, compliance with emission limits is based on emission factors that have been shown to be inaccurate.²³

Differential Absorption LIDAR (“DIAL”) technology uses lasers to track emissions from refineries, including fugitive emissions from tanks and hard to measure emissions from flares.²⁴ Two different studies of refineries in Texas and the Canadian province of Alberta have confirmed that emissions from cokers, tanks, flares and other sources are substantially greater than predicted by USEPA emission factors. Commenters recommend that SCAQMD take advantage of this technology to measure actual emissions from such units, and make appropriate adjustments to the methods that are used to estimate emissions. SCAQMD should also require periodic use of infrared cameras to pinpoint major sources of leaks from process units.

SCAQMD must include the requirements of the Valero Consent Decree in the ConocoPhillips Wilmington Refinery operating permit.

SCAQMD Rule 3004 requires that Title V permits include all federally applicable requirements, as well as provisions to address any outstanding violations of the Clean Air Act at the time the permit is issued.²⁵ More specifically, Rule 3004(a)(10)(C) requires the permit to, “include a compliance schedule of remedial measures, including an enforceable sequence of actions with milestones, to be taken by the owner or operator to achieve compliance. This compliance

²² 58 Fed. Reg. 63941, 63952.

²³ Environmental Integrity Project (EIP), *Re: Request for Correction of Information Under the Data Quality Act and EPA's Information Quality Guidelines*, (5-6), (2008), available at <http://www.environmentalintegrity.org/pub521.cfm>.

²⁴ *Id.* at 6; Clearstone Eng'g Ltd., *A Review of Experiences Using DIAL Technology to Quantify Atmospheric Emissions at Petroleum Facilities* 2 (Sept. 6, 2006).

²⁵ South Coast Air Quality Management District Rule 3004(a) (Found at <http://www.arb.ca.gov/DRDB/SC/CURHTML/R3004.HTM>).

schedule shall resemble and be at least as stringent as that contained in any: i) Judicial consent decree or administrative order to which the source is subject...”²⁶

The ConocoPhillips Wilmington Refinery is currently subject to the terms of the Valero consent decree from the U.S. District Court (Western District of Texas) that was decided on January 27, 2005.²⁷ In addition, the ConocoPhillips Wilmington Refinery is subject to the SCAQMD Hearing Board Order for Case No. 4900-79, regarding compliance with District Rule 1118.²⁸ SCAQMD must revise the draft permit to include all federally applicable requirements, including those from the January 27, 2005 consent decree, which includes a schedule for resolving alleged violations of the Clean Air Act.

The proposed permit mischaracterizes some rules as non-federally enforceable.

In preparing its Title V permit application, Conoco must determine which requirements are part of the State Implementation Plan (SIP). This determination is crucial to ensuring compliance with the CAA, particularly for larger facilities. State regulations that are part of the SIP are federally enforceable, meaning that their requirements operate as both state and federal law. The Table in Section K identifies applicable rules as federally or non-federally enforceable, depending on whether each rule is SIP approved, not SIP approved, or EPA’s approval of the rule as part of the SIP is pending.

The draft permit acknowledges that EPA has approved many of the District’s rules and entered them into the SIP [40 CFR Part 52, Subpart F]. In cases where the District has adopted new, more stringent rules that have not yet been approved as part of the SIP, EPA requires the Title V permit to refer to both the SIP-approved and the non SIP-approved version of the rule.²⁹ Thus, some of the rules in Table K are non-federally enforceable pending EPA approval as part of the SIP. While SCAQMD awaits SIP-approval of the more recent amended rules, facilities are required to comply with both the SIP-approved rule and the most recent version of the same applicable rule.³⁰

While Table K, for the most part, correctly describes the rules’ status (SIP approved or approval pending), in one instance, SCAQMD incorrectly labels a federally enforceable rule as non-federally enforceable. EPA included Rule 431.2 on its list of SIP approved rules effective May 4, 1990 and it is therefore federally enforceable.³¹ Table K of the permit should be amended to reflect that Rule 431.2 is federally enforceable.

SCAQMD should re-organize pending permits to clearly identify emissions limits.

Section D of the permit currently contains emissions limits that apply to the devices within the refinery. While EIP appreciates the effort to cross-reference rule sections throughout Section D

²⁶ Rule 3004(a)(10)(C) and 3004(a)(10)(C)(i).

²⁷ Statement of Basis of Permit at 24.

²⁸ Id.

²⁹ Compliance with Outdated Rules in the State Implementation Plan on South Coast AQMD website updated March 29, 2006 see: <http://www.aqmd.gov/titlev/requirements.html>.

³⁰ Id.

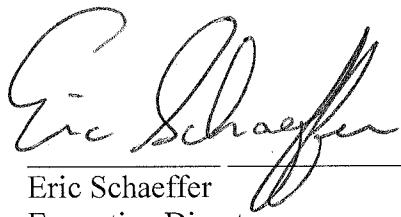
³¹ 64 FR 30396.

and the Code of Federal Regulations, for future permits, SCAQMD should include the emissions limits and monitoring methods directly into the charts provided in Section D. Specifically, these limits should go under the column "Emissions and Requirements" and "Conditions," so that the public can more easily connect the emissions limits with the equipment releasing the emissions. This would be particularly helpful for high emission devices.

Additionally, it appears that not all the rules in Section D's "Emissions and Requirements" column are up to date. For example, D42 is required to meet "Rule 1146, 11-17-2000," yet this was amended on 01-07-05 and 05-05-06.

Thank you for the opportunity to comment on the proposed Title V permit for the ConocoPhillips Wilmington Refinery.

Sincerely,



Eric Schaeffer
Executive Director
Environmental Integrity Project
1920 L Street NW, Suite 800
Washington, DC 20036



Jesse N. Marquez
Executive Director
Coalition For A Safe Environment
PO Box 1918
Wilmington, CA 90748

/s/Sarah Kern

Sarah Kern
Staff Attorney
Communities for a Better Environment
1440 Broadway
Oakland, California 94612

/s/Kim Baglieri

Kim Baglieri
Project Coordinator
People's Community Organization for Reform and
Empowerment
The Environmental Justice Network of Southern
California
1610 Beverly Blvd., Ste. 2,
Los Angeles, CA, 90026

<u>ATTACHMENT A</u>		<u>MONITORING/COMPLIANCE</u>
<u>DEVICE</u>	<u>EMISSIONS/REQUIREMENTS</u>	
FCCU - D1:PM	0.5lbs/1000lbs of coke burned averaged over 3 hours (Section D, pg 208, A195.13)	Annual stack test (Section D, pg 247, D29.1) Continuous opacity monitor, which shall be either 1) a continuous monitoring system or 2) a monitoring method pursuant to an USEPA-approved alternative monitoring plan (Section D, A229.1)
	Opacity limit of 30% (Section D, A229.1)	Visible inspection from all stacks and other emission points of this equipment whenever there is a public complaint of visible emissions (Section D, D323.5)
	Emission limit of 23-450mg PM per dry, standard cubic meter of gas (maximum allowable emission limit varies with the exhaust gas flow rate (Rule 404, 2-7-1986))	No Rule Monitoring: Gap-Filling Monitoring refers to requirement in Appendix A. (Nothing in this appendix.)(Rule 404, 2-7-1986)
	0.45 to 13.60 kilogram solid PM per hour (emission limit determined from process weight per hour) (Rule 405, 2-7-1986)	No Rule Monitoring: Gap-Filling Monitoring refers to requirement in Appendix A. (Nothing in this appendix.)(Rule 405, 2-7-1986)
	1 lb/1000 lbs of coke burnoff (40CFR 60 Subpart J, 6-24-2008)	The average coke burn-off rate and hours of operation shall be recorded daily for any fluid catalytic cracking unit catalyst regenerator. (40CFR 60 Subpart J, 6-24-2008)
	0.1Grains/SCF (5) [Rule 409,8-7-1981]	No Rule Monitoring: Gap-Filling Monitoring: None for gaseous/liquid fueled equipment. Performance test once every 5 yrs or parametric monitoring correlated with a performance test for solid fuel-fired equipment. (Rule 409,8-7-1981)
FCCU - D1:CO	The FCCU may not release a discharge in excess of 500PPMV (8) [40CFR 60 Subpart J, 6-24-2008] < 2,000 ppmv CO, dry basis, averaged over 15 minutes duration (5) (Rule 407, 4-2-1982)	Monitoring by either: (a) conducting a source test at least once every five years using AQMD Method 100.1 or 10.1; or (b) conducting a test at least annually using a portable analyzer No Rule Monitoring: Gap-Filling Monitoring requires once every 5 years with a portable CO analyzer.

FCCU: HEATER: D41: PM	No Rule Monitoring: Gap-Filling Monitoring: None for gaseous/liquid fueled equipment. Performance test once every 5 yrs or parametric monitoring correlated with a performance test for solid fuel-fired equipment. (Rule 409,8-7-1981)
FCCU: HEATER: D41: CO	No Rule Monitoring: Gap-Filling Monitoring refers to emission factors, testing of their control devices, requirement in Appendix A, which lists various control devices that vary in their frequency and efficacy for monitoring. (Rule 404, 2-7-1986)
FCCU: HEATER: D42: PM	No Rule Monitoring: Gap-Filling Monitoring requires once every 5 years or annually with a portable CO analyzer. (D328.1)
FCCU: HEATER: D42: CO	No Rule Monitoring: Gap-Filling Monitoring refers to 23-450mg PM per dry, standard cubic meter of gas (maximum allowable emission limit varies with the exhaust gas flow rate) (9) [Rule 404,2-7-1986)
FCCU: HEATER: D42: PM	No Rule Monitoring: Gap-Filling Monitoring requires once every 5 years or annually with a portable CO analyzer. (D328.1)
FCCU: HEATER: D42: CO	No Rule Monitoring: Gap-Filling Monitoring refers to 23-450mg PM per dry, standard cubic meter of gas (maximum allowable emission limit varies with the exhaust gas flow rate) (9) [Rule 404,2-7-1986]
FCCU: HEATER: D42: PM	No Rule Monitoring: Gap-Filling Monitoring refers to 23-450mg PM per dry, standard cubic meter of gas (maximum allowable emission limit varies with the exhaust gas flow rate) (9) [Rule 404,2-7-1986)
FCCU: HEATER: D42: CO	No Rule Monitoring: Gap-Filling Monitoring requires once every 5 years with a portable CO analyzer.
FCCU: HEATER: D42: PM	Visible inspection from all stacks and other emission points of this equipment whenever there is a public complaint of visible emissions (Section D, D323.6)

		No Rule Monitoring: Gap-Filling Monitoring: None for gaseous/liquid fueled equipment. Performance test once every 5 yrs or parametric monitoring correlated with a performance test for solid fuel-fired equipment. (Rule 409,8-7-1981)
FCCU: HEATER: D44: PM	0.1Grains/SCF (5) [Rule 409,8-7-1981]	23-450mg PM per dry, standard cubic meter of gas (maximum allowable emission limit varies with the exhaust gas flow rate) (9) [Rule 404,2-7-1986)
FCCU: HEATER: D44: CO	< 2,000 ppmv CO, dry basis, averaged over 15 minutes duration (5) (Rule 407, 4-2-1982)	No Rule Monitoring: Gap-Filling Monitoring requires once every 5 years with a portable CO analyzer.
HYDROTREATIN G: UNIT 59 HEATERS: D194: PM	0.1Grains/SCF (5) [Rule 409,8-7-1981]	None for gas and liquid field equipment.
HYDROTREATIN G: UNIT 59 HEATERS: D194: CO	23-450mg PM per dry, standard cubic meter of gas (maximum allowable emission limit varies with the exhaust gas flow rate) per cycle or hour, whichever period is shorter (9) [Rule 404,2-7-1986)	No Rule Monitoring: Gap-Filling Monitoring refers to emission factors, testing of their control devices, requirement in Appendix A, which lists various control devices that vary in their frequency and efficacy for monitoring. (Rule 404, 2-7-1986)
HYDROTREATIN G: UNIT 90 HEATERS: D146: PM	< 2,000 ppmv CO, dry basis, averaged over 15 minutes duration (5) (Rule 407, 4-2-1982)	No Rule Monitoring: Gap-Filling Monitoring requires once every 5 years with a portable CO analyzer.
	0.1Grains/SCF (5) [Rule 409,8-7-1981]	None for gas and liquid field equipment.
	23-450mg PM per dry, standard cubic meter of gas (maximum allowable emission limit varies with the exhaust gas flow rate) (9) [Rule 404,2-7-1986)	No Rule Monitoring: Gap-Filling Monitoring refers to requirement in Appendix A, (Nothing in this appendix.) (Rule 404, 2-7-1986)

HYDROTREATIN G: UNIT 90 HEATERS: D146: CO	< 2,000 ppmv CO, dry basis, averaged over 15 minutes duration (5) (Rule 407, 4-2-1982)	No Rule Monitoring: Gap-Filling Monitoring requires once every 5 years with a portable CO analyzer.
HYDROTREATIN G: UNIT 80 HEATERS: D135: PM	0.1 Grains/SCF (5) [Rule 409,8-7-1981]	None for gas and liquid field equipment.
HYDROTREATIN G: UNIT 80 HEATERS: D135: CO	23-450mg PM per dry, standard cubic meter of gas (maximum allowable emission limit varies with the exhaust gas flow rate) (9) [Rule 404,2-7-1986)	No Rule Monitoring: Gap-Filling Monitoring refers to requirement in Appendix A. (Nothing in this appendix.)(Rule 404, 2-7-1986)
HYDROTREATIN G: UNIT 80 HEATERS: D136: PM	< 2,000 ppmv CO, dry basis, averaged over 15 minutes duration (5) (Rule 407, 4-2-1982)	No Rule Monitoring: Gap-Filling Monitoring requires once every 5 years with a portable CO analyzer.
HYDROTREATIN G: UNIT 80 HEATERS: D136: CO	0.1 Grains/SCF (5) [Rule 409,8-7-1981]	None for gas and liquid field equipment.
HYDROTREATIN G: UNIT 80 HEATERS: D136: PM	23-450mg PM per dry, standard cubic meter of gas (maximum allowable emission limit varies with the exhaust gas flow rate) (9) [Rule 404,2-7-1986)	No Rule Monitoring: Gap-Filling Monitoring refers to requirement in Appendix A. (Nothing in this appendix.)(Rule 404, 2-7-1986)
HYDROTREATIN G: UNIT 80 HEATERS: D137: PM	< 2,000 ppmv CO, dry basis, averaged over 15 minutes duration (5) (Rule 407, 4-2-1982)	No Rule Monitoring: Gap-Filling Monitoring requires once every 5 years with a portable CO analyzer.
HYDROTREATIN G: UNIT 80 HEATERS: D137: PM	0.1 Grains/SCF (5) [Rule 409,8-7-1981]	None for gas and liquid field equipment.

	23-450mg PM per dry, standard cubic meter of gas (maximum allowable emission limit varies with the exhaust gas flow rate) (9) [Rule 404,2-7-1986)	No Rule Monitoring: Gap-Filling Monitoring refers to requirement in Appendix A. (Nothing in this appendix.)(Rule 404, 2-7-1986)
HYDROTREATIN G: UNIT 80 HEATERS: D137:	< 2,000 ppmv CO, dry basis, averaged over 15 minutes duration (5) (Rule 407, 4-2-1982)	No Rule Monitoring: Gap-Filling Monitoring requires once every 5 years with a portable CO analyzer.
HYDROTREATIN G: UNIT 80 HEATERS: D138: PM	0.1Grains/SCF (5) [Rule 409,8-7-1981]	None for gas and liquid field equipment.
HYDROTREATIN G: UNIT 80 HEATERS: D138: CO	23-450mg PM per dry, standard cubic meter of gas (maximum allowable emission limit varies with the exhaust gas flow rate) (9) [Rule 404,2-7-1986)	No Rule Monitoring: Gap-Filling Monitoring refers to requirement in Appendix A. (Nothing in this appendix.)(Rule 404, 2-7-1986)
HYDROTREATIN G: UNIT 100 HEATERS: D154: PM	0.1Grains/SCF (5) [Rule 409,8-7-1981]	None for gas and liquid field equipment.
HYDROTREATIN G: UNIT 100 HEATERS: D154: CO	23-450mg PM per dry, standard cubic meter of gas (maximum allowable emission limit varies with the exhaust gas flow rate) (9) [Rule 404,2-7-1986)	No Rule Monitoring: Gap-Filling Monitoring refers to requirement in Appendix A. (Nothing in this appendix.)(Rule 404, 2-7-1986)
	< 2,000 ppmv CO, dry basis, averaged over 15 minutes duration (5) (Rule 407, 4-2-1982)	No Rule Monitoring: Gap-Filling Monitoring requires once every 5 years with a portable CO analyzer.

	2.89 LBS/HR (7)[RULE 1303(b)(2)-Offset,5-10-1996]	Performance test once every 5 years of exhaust stack for PM or parametric monitoring correlated to performance test. (Section D, p. 260, D328.1)
HYDROTREATIN G: UNIT 100 HEATERS: D155: PM	0.1Grains/SCF (5) [Rule 409,8-7-1981]	None for gas and liquid field equipment.
	23-450mg PM per dry, standard cubic meter of gas (maximum allowable emission limit varies with the exhaust gas flow rate) (9) [Rule 404,2-7-1986)	No Rule Monitoring: Gap-Filling Monitoring refers to requirement in Appendix A. (Nothing in this appendix.)(Rule 404, 2-7-1986)
HYDROTREATIN G: UNIT 100 HEATERS: D155: CO	<2,000 ppmv CO, dry basis, averaged over 15 minutes duration (5) (Rule 407, 4-2-1982)	No Rule Monitoring: Gap-Filling Monitoring requires once every 5 years with a portable CO analyzer.
	2.63 LBS/HR (7)[RULE 1303(b)(2)-Offset,5-10-1996]	Performance test once every 5 years of exhaust stack for PM or parametric monitoring correlated to performance test. (Section D, p. 260, D328.1)
HYDROTREATIN G: UNIT 100 HEATERS: D156: PM	0.1Grains/SCF (5) [Rule 409,8-7-1981]	None for gas and liquid field equipment.
	23-450mg PM per dry, standard cubic meter of gas (maximum allowable emission limit varies with the exhaust gas flow rate) (9) [Rule 404,2-7-1986)	No Rule Monitoring: Gap-Filling Monitoring refers to requirement in Appendix A. (Nothing in this appendix.)(Rule 404, 2-7-1986)
HYDROTREATIN G: UNIT 100 HEATERS: D156: CO	<2,000 ppmv CO, dry basis, averaged over 15 minutes duration (5) (Rule 407, 4-2-1982)	No Rule Monitoring: Gap-Filling Monitoring requires once every 5 years with a portable CO analyzer.
	1.84 LBS/HR (7)[RULE 1303(b)(2)-Offset,5-10-1996]	Performance test once every 5 years of exhaust stack for PM or parametric monitoring correlated to performance test. (Section D, p. 260, D328.1)

HYDROCRACKING: UNIT 120 HEATERS:D264: PM	0.1Grains/SCF (5) [Rule 409,8-7-1981]	None for gas and liquid field equipment.
HYDROCRACKING: UNIT 120 HEATERS:D264: CO	23-450mg PM per dry, standard cubic meter of gas (maximum allowable emission limit varies with the exhaust gas flow rate) (9) [Rule 404,2-7-1986)	No Rule Monitoring: Gap-Filling Monitoring refers to requirement in Appendix A. (Nothing in this appendix.)(Rule 404, 2-7-1986)
ELECTRICITY GENERATION: BOILER: D829: PM	< 2,000 ppmv CO ₂ , dry basis, averaged over 15 minutes duration (5) (Rule 407, 4-2-1982)	No Rule Monitoring: Gap-Filling Monitoring requires once every 5 years with a portable CO analyzer.
ELECTRICITY GENERATION: BOILER: D829: PM	0.1Grains/SCF (5) [Rule 409,8-7-1981]	None for gas and liquid field equipment.
ELECTRICITY GENERATION: BOILER: D829: CO	11LBS/HR (5A) [RULE 476, 10-8-1976 0.01 GRAINS/SCF (5B) [RULE 476, 10-8-1976 269 lbs/day (total combined with D828) [Section D, A63.2]	No Rule Monitoring: Gap-Filling Monitoring requires performance test once every 5 years of exhaust stack for PM or parametric monitoring correlated to performance test. (Rule 476, 10-8-76) No Rule Monitoring: Gap-Filling Monitoring requires performance test once every 5 years of exhaust stack for PM or parametric monitoring correlated to performance test. (Rule 476, 10-8-76)
ELECTRICITY GENERATION: BOILER: D829: CO	< 2,000 ppmv CO ₂ , dry basis, averaged over 15 minutes duration (5) (Rule 407, 4-2-1982)	No Rule Monitoring: Gap-Filling Monitoring requires once every 5 years with a portable CO analyzer.
	10PPMV (4) [RULE 1303(a)(1)-BACT, 5-10-1996	Performance test once every 5 years of exhaust stack for PM or parametric monitoring correlated to performance test. (Section D, p. 260, D328.1)

ELECTRICITY GENERATION: TURBINE: D828: PM	11 LBS/HR (5A) [RULE 475, 10-8-1976; RULE 475, 8-7-1978]	No Rule Monitoring: Gap-Filling Monitoring requires performance test once every 5 years of exhaust stack for PM conducted or parametric monitoring correlated to performance test.
	0.01 GRAIN/SCF (5B) [RULE 475, 10-8-1976; RULE 475, 8-7-1978]	No Rule Monitoring: Gap-Filling Monitoring requires performance test once every 5 years of exhaust stack for PM conducted or parametric monitoring correlated to performance test.
	0.1 GRAINS/SCF (5) [RULE 409, 8-7-1981] 269 lbs/day (total combined with D829) [Section D, A63.2]	None for gas and liquid field equipment.
ELECTRICITY GENERATION: TURBINE: D828: CO	< 2,000 ppmv CO, dry basis, averaged over 15 minutes duration (5) (Rule 407, 4-2-1982)	No Rule Monitoring: Gap-Filling Monitoring requires once every 5 years with a portable CO analyzer.
	10PPMV (4) [RULE 1303(a)(1)-BACT, 5-10-1996	Performance test once every 5 years of exhaust stack for PM or parametric monitoring correlated to performance test. (Section D, p. 260, D328.1)
STEAM GENERATION: BOILER: D684: PM	0.01 Grains/SCF (5) [Rule 409,8-7-1981]	None for gas and liquid field equipment.
STEAM GENERATION: BOILER: D684: CO	< 2,000 ppmv CO, dry basis, averaged over 15 minutes duration (5) (Rule 407, 4-2-1982)	No Rule Monitoring: Gap-Filling Monitoring requires once every 5 years with a portable CO analyzer.
STEAM GENERATION: BOILER: D686: PM	0.01 Grains/SCF (5) [Rule 409,8-7-1981]	None for gas and liquid field equipment.

STEAM GENERATION: BOILER: D686: CO	< 2,000 ppmv CO, dry basis, averaged over 15 minutes duration (5) (Rule 407, 4-2-1982)	No Rule Monitoring: Gap-Filling Monitoring requires once every 5 years with a portable CO analyzer.
	19.2 LBS/HR (7) [RULE 1303(b)(2)-Offset, 5-10-1996]	Performance test once every 5 years of exhaust stack for PM or parametric monitoring correlated to performance test. (Section D, p. 260, D328.1)
STEAM GENERATION: BOILER: D687: PM	0.01 Grains/SCF (5) [Rule 409,8-7-1981]	None for gas and liquid field equipment.
	11LBS/HR (5A) [RULE 476, 10-8-1976]	No Rule Monitoring: Gap-Filling Monitoring requires performance test once every 5 years of exhaust stack for PM or parametric monitoring correlated to performance test. (Rule 476, 10-8-76)
	0.01 GRAINS/SCF, 15 minute average (5B) [RULE 476, 10-8-1976]	None for natural gas fired equipment. For all other fuels, performance test once every 5 years of exhaust stack for PM.
STEAM GENERATION: BOILER: D687: CO	< 2,000 ppmv CO, dry basis, averaged over 15 minutes duration (5) (Rule 407, 4-2-1982)	No Rule Monitoring: Gap-Filling Monitoring requires once every 5 years with a portable CO analyzer.
STEAM GENERATION: BOILER: D688: PM	0.1 Grains/SCF (5) [Rule 409,8-7-1981]	None for gas and liquid field equipment.
STEAM GENERATION: BOILER: D688: CO	< 2,000 ppmv CO, dry basis, averaged over 15 minutes duration (5) (Rule 407, 4-2-1982)	No Rule Monitoring: Gap-Filling Monitoring requires once every 5 years with a portable CO analyzer.